

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1 (Currently Amended): An apparatus for passively cooling and retaining molten core material from a reactor vessel, the apparatus comprising:

a molten core material retention tank configured to be installed inside a reactor cavity to retain molten core material from the reactor vessel;

a compressed gas tank having an outlet valve at an outlet thereof and supplying inert gas;

a cooling water storage tank being installed higher than the molten core material retention tank, having an outlet valve at an outlet thereof, and supplying cooling water; and

~~a mixer including piping connecting to and extending from each of the compressed gas tank and the cooling water storage tank, the piping from the compressed gas tank and the piping from the cooling water storage tank being connected, thereby mixing inert gas supplied from the compressed gas tank with cooling water supplied from the cooling water storage tank, wherein further piping extends from the connection between the piping for the compressed gas tank and the piping for the cooling water storage tank to the molten core material retention tank thereby supplying the cooling water/inert gas mixture to the molten core material retention tank~~ respectively extending from the compressed gas tank and the cooling water storage tank, connected to each other to mix an inert gas from the compressed gas tank with cooling water from the cooling water storage tank, and supplying a mixture of the inert gas and the cooling water to the molten core material retention tank to prevent a steam explosion.

2 (Previously Presented): The apparatus of claim 1, wherein the molten core material retention tank comprises:

an outer retention vessel having at least one coolant hole formed in a side or bottom thereof and connected to the mixer;

a porous protection vessel formed of refractory material at an inside of the outer retention vessel; and

a gravel layer formed between the outer retention vessel and the porous protection vessel, and filled with refractory gravels.

3 (Original): The apparatus of claim 2, wherein the gravels are filled in the gravel layer to distribute and support the load of molten core material retained in the porous protection vessel.

4 (Cancelled)

5 (Previously Presented): The apparatus of claim 2, wherein the porous protection vessel comprises sintered refractory gravel or powder, and a layer of sacrificial and water tight material cemented on a surface of the protection vessel.

6 (Original): The apparatus of claim 2, wherein the outer retention vessel has a screen layer formed on an inner surface thereof.

7 (Previously Presented): The apparatus of claim 1, wherein the cooling water storage tank has a check valve installed at the outlet thereof so as to prevent the backflow of gas.

8 (Previously Presented): The apparatus of claim 1, further comprising an intermediate storage tank, wherein steam generated by a reaction between the molten core material and the cooling water is condensed into water and the condensed water is resupplied through the intermediate storage tank to the cooling water storage tank.

9 (Original): The apparatus of claim 8, wherein the intermediate storage tank has a filter installed in an upper side thereof to filter the condensed water through the filter, whereby the filtered water is resupplied to the cooling water storage tank.